



176407

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

MEMORANDUM

HSE-5J

DATE:

FEB 25 1994

SUBJECT: ACTION MEMORANDUM - Request for an
Emergency Removal Action at the 109th Place
Tear Gas Site, Chicago, Cook County,
Illinois (Site ID # ZW)

FROM: Stavros Emmanouil, On-Scene Coordinator
Emergency Response Section II

TO: Richard Karl, Chief
Emergency & Enforcement Response Branch

I. PURPOSE

The purpose of this Action Memorandum is to request your approval of funds in the amount of \$ 32,507 for expenses generated during the emergency removal action at the 109th Place Tear Gas site, located at 56 West 109th Place in Chicago, Cook County, Illinois. The amount of \$ 10,000, which was verbally approved by the Chief of the Emergency and Enforcement Response Branch (EERB) for the initial response activity conducted by the Emergency Response Cleanup Services (ERCS), is included in the total figure. The action was necessary to abate the immediate threat to public health and the environment from exposure to ortho-chlorobenzylidenemalononitrile (CS 237), a military-type tear gas, which was released in a private residence. The action outlined in this memorandum treated and removed all CS 237 contamination at the site.

This site is not on the National Priorities List (NPL).

II. SITE CONDITIONS AND BACKGROUND

CERCLIS ID # IL0000027714

The 109th Place Tear Gas site is a residence located on a corner lot at 56 West 109th Place, Chicago, Cook County, Illinois. The area is primarily residential in nature, with some light industrial areas. The residence is a wooden, two-story home, which appears to have been divided into two apartments. The property has a garage at the rear, and is not fenced.

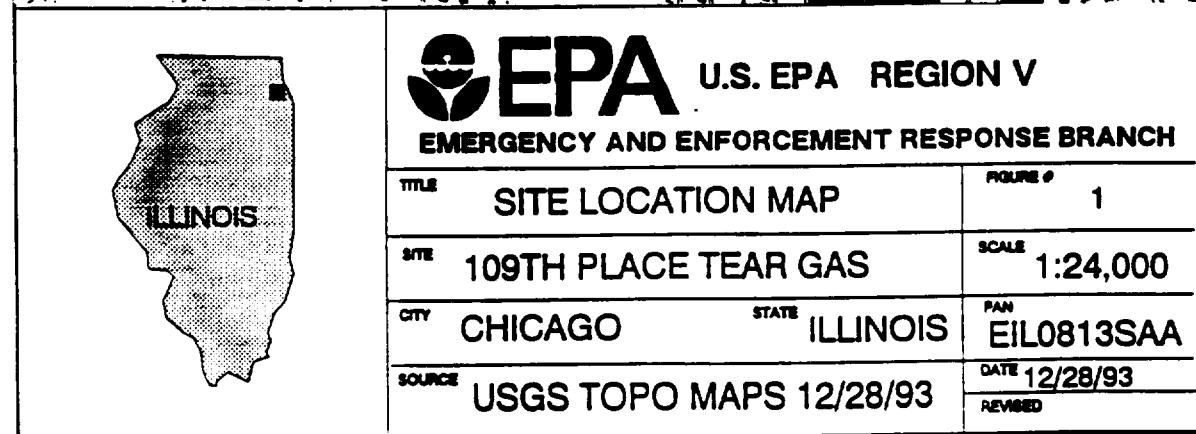


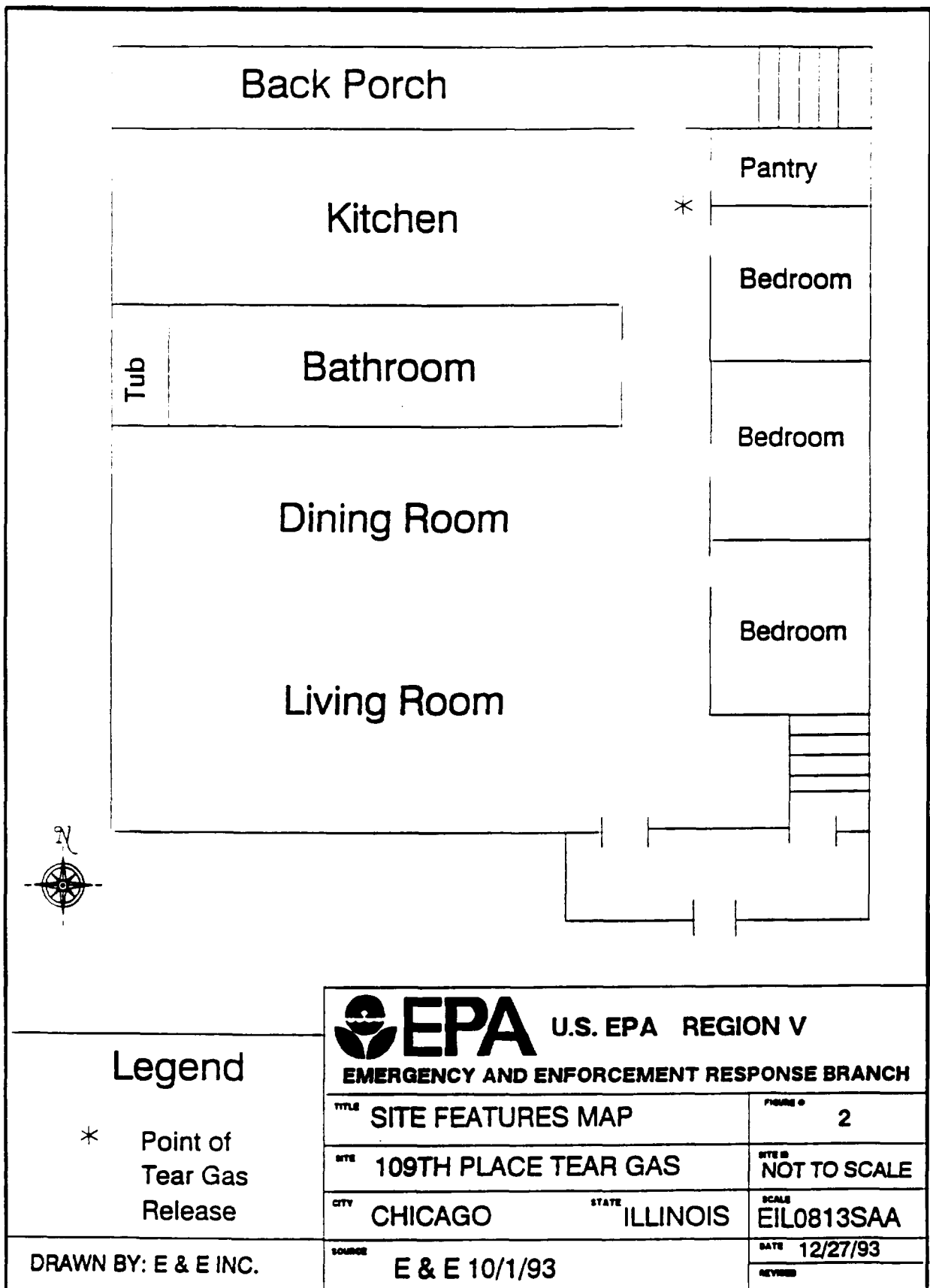
An emergency removal action was necessary at the site to eliminate the immediate threat posed by the release of CS 237. Site evaluations conducted by the United States Environmental Protection Agency (U.S. EPA) identified a potential threat to the residents living at or near 56 West 109th Place, Chicago, Illinois, from the above-mentioned chemical (see Figure 1 for site location). The release occurred in an incident that took place at approximately 1300 hours on September 30, 1993, when a 14-year-old boy detonated a canister of tear gas which contained CS 237 in the kitchen of his residence. The detonation generated a smoke plume, filling the house with tear gas. The canister was thrown into a garbage can, which was then brought outside the building. All of the occupants of the house were overcome by the gas and evacuated.

The Chicago Fire Department responded to the call, and arrived at the scene. The Chicago Police were also called to the scene to restrict public access. Several fire fighters were overcome by the gas upon entering the house to investigate. George Roberts, a representative of the Chicago Department of the Environment, Enforcement Division (CDEED), responded and arrived at 1525 hours. At 1600 hours U.S. EPA was notified of the incident, and U.S. EPA On-Scene Coordinator (OSC) Stavros Emmanouil responded and arrived at 1720 hours. The Ecology and Environment, Inc. (E & E), Technical Assistance Team (TAT) also responded and conducted an emergency site assessment. Following the site assessment, the house was secured. The residents of the house were temporarily relocated by the City of Chicago. Mr. Roberts requested verbally that U.S. EPA conduct the removal due to the lack of City funds.

On October 1, 1993, at approximately 1800 hours, U.S. EPA and the TAT arrived on-site. The OSC was notified by CDEED that the house had allegedly been burglarized sometime during the previous evening. During the day of October 1, 1993, the residents of the house returned to the site and entered the home. At least one individual was overcome, and again the Chicago Fire Department, the Chicago Police, and CDEED were called to the site. Don Klopke of the Illinois Environmental Protection Agency (IEPA) was contacted and was given the opportunity to conduct the removal, but IEPA declined to do so due to lack of funds. At this time, funds in the amount of \$ 10,000 were approved by the Chief of the Region 5 EERB, Rick Karl, to initiate the removal. EPA representatives entered the site a second time in order to determine the status of contamination. Also present at this assessment was Riedel Environmental, the ERCS contractor.

The first floor of the house, where the emergency took place, consists of a living room, a dining room, three bedrooms, a bathroom, a kitchen, and a pantry area (see Figure 2). The canister had been detonated in the kitchen, and therefore contamination was mainly restricted to the kitchen and pantry areas. The CS 237 powder was in a light layer on the floor in the kitchen, in a circular area approximately 1 yard in diameter. Also affected was the pantry; the other rooms of the house did not appear to have been affected by the powder. Fumes from the powder appeared to have filled the house.





A paved cement gangway runs along the east side of the house. The garbage can containing trash, into which the exploded tear gas canister was placed, had been brought outside the residence after the detonation, and placed onto the paved gangway next to the back door of the residence. Much of the garbage in the can appeared to be covered by CS 237 powder.

Site evaluations conducted identified a threat from CS 237 to the residents in or around the house. This chemical produces immediate effects even in extremely low concentrations. It is extremely irritating to eyes, the respiratory system, and mucous membranes. The median effective concentration for respiratory effects is 12 to 20 milligrams per cubic meter (mg/m^3); for eye effects, 1 to 5 mg/m^3 . The onset of maximum effects is 20 to 60 seconds. The median incapacitating dosage is 10 to 20 $\text{mg-min}/\text{m}^3$. The median lethal dosage is 61,000 (milligrams per minute per cubic meter ($\text{mg-min}/\text{m}^3$)). This chemical can also cause nausea.

Based on the immediate threats identified at the site, U.S. EPA documented that an immediate response was warranted to decontaminate the house. Delay in the decontamination process could have resulted in difficulties and further delayed the family from reentering their home.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the 109th Place Tear Gas site presented an imminent and substantial threat to human health and the environment, and met the criteria for a removal action as stated in the National Contingency Plan (NCP), Section 300.415, Paragraph (b)(2), specifically:

- (a) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

A canister of tear gas detonated in the residence at 56 West 109th Place in Chicago, released CS 237, a military tear gas. Because of the extremely irritating nature of CS 237, it was impossible for the inhabitants of the residence to resume occupancy following the detonation incident. Prolonged exposure to the chemical in question would have resulted in irritation of the eyes, respiratory system, and mucous membranes of the inhabitants of the home.

IV. ENDANGERMENT DETERMINATION

Given site conditions, the nature of the hazardous substances on site, and the potential exposure pathways to nearby populations described in Sections II and III above, actual or threatened releases of pollutants and contaminants from this site, if not addressed by implementing the response action selected in this Action Memorandum, may have presented an imminent and substantial endangerment to public health, or welfare, or the environment.

According to the United States Army Field Manual, Military Chemistry and Chemical Compounds, FM 3-9, October 1975, the median effective concentration of CS 237 for respiratory effects is 12 to 20 mg/m³; for eye effects is 1 to 5 mg/m³. The onset of maximum effects is 20 to 60 seconds. Although the concentrations could not be determined with precision during the emergency, members of the household were overcome twice and members of the Chicago Fire Department were overcome upon initial site entry, indicating that the concentration of CS 237 apparently exceeded the above-cited median levels.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

In order to mitigate the actual and potential threats at this site, the following actions were determined to be necessary:

1. Develop and implement a site safety plan.
2. Evacuate inhabitants of the house.
3. Provide security as needed.
4. Photodocument and videotape residence before and after clean-up.
5. Vacuum to remove as much contamination as possible, using a self-contained vacuum in all first-floor rooms.
6. Wash all contents of kitchen and pantry, using water.
7. Wash all floors, walls, and ceilings of kitchen and pantry.
8. Bag all loose clothes in bedrooms.
9. Transport and dispose of personnel protective equipment generated in cleanup.
10. Transport any and all solid and liquid waste generated during the removal process to a facility to be determined at a later date.

No further action is required because the removal action has completed the cleanup of this site.

This removal action is estimated to cost \$ 32,507 and required three 8-hour working days. Detailed cleanup contractor costs are presented in Attachment 1, and estimated project costs are summarized below:

REMOVAL PROJECT CEILING ESTIMATE

EXTRAMURAL COSTS:

Cleanup Contractor Costs	\$ 7,600
Contingency (25%)	\$ 1,900
Subtotal	\$ 9,500
Total TAT, including multiplier costs	\$ 12,000
Extramural Subtotal	\$ 21,500
Extramural Contingency (25%)	<u>\$ 5,375</u>
TOTAL, EXTRAMURAL COSTS:	\$ 26,875

INTRAMURAL COSTS:

U.S. EPA Direct Costs (\$35 x 64 Hrs.)	\$ 2,240
U.S. EPA Indirect Costs (\$53 x 64 Hrs.)	<u>\$ 3,392</u>
TOTAL, INTRAMURAL COSTS	\$ 5,632
 TOTAL REMOVAL PROJECT CEILING	 \$ 32,507

Post-removal site controls were not necessary at the 109th Place Tear Gas site. Completion of removal activities eliminated direct contact threats to the public and any need for post-removal site controls.

The response actions described in this memorandum directly addressed actual or threatened releases of hazardous substances, pollutants, or contaminants at the residence which posed an imminent and substantial endangerment to public health and safety, and to the environment. These response actions did not impose a burden on affected property disproportionate to the extent to which that property contributed to the conditions being addressed.

All applicable or relevant and appropriate requirements (ARARs) of Federal law were complied with to the extent practicable. Don Klopke of IEPA's Maywood office was verbally notified by the OSC on October 1, 1993, at which time the OSC requested that Klopke identify State ARARs. All State ARARs identified were complied with to the extent practicable.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

In the event that no further actions had been taken by U.S. EPA, the site would have remained unaddressed. This would have resulted in the residence at 56 109th Place remaining uninhabitable, and due to the extremely irritating nature of CS 237, could potentially have increased the health risks to the public.

VII. OUTSTANDING POLICY ISSUES

No significant outstanding policy issues are associated with the 109th Place Tear Gas site.

VIII. ENFORCEMENT

For administrative purposes, information concerning the enforcement strategy for this site is contained in Attachment 2, Enforcement Confidential Information.

IX. RECOMMENDATION

This decision document represents the selected removal action for the 109th Place Tear Gas site in Chicago, Illinois, developed in accordance with CERCLA as amended by SARA, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the site. Conditions at the 109th Place Tear Gas site meet the NCP Section 300.415 (b)(2) criteria for a removal action and I recommend your approval to release funds for this removal action. The total project ceiling, if approved, is \$ 32,507. Of this, an estimated \$14,875 may be used for cleanup contractor costs. You may indicate your decision by signing below:

APPROVE: Donald F. Bruce for Rick Karl DATE: 2/25/94
Chief, Emergency &
Enforcement Response Branch

DISAPPROVE: _____ DATE: _____
Chief, Emergency &
Enforcement Response Branch

Attachments:

1. Detailed Cleanup Contractor Cost Estimate
2. Enforcement Confidential Information
3. Administrative Record Index

cc: T. Johnson, OS-210
Sheila Huff, U.S. Department of the Interior
230 South Dearborn St., Room 3422
Chicago, Illinois 60604

bcc: A. Baumann, HSRL-5J
R. Powers/R. Buckley, HSE-GI
R. Karl, HSE-5J
J. Cisneros, HSE-5J
D. Bruce, HSE-5J
L. Fabinski, ATSDR, HSRL-5J
O. Warnsley, CRU, HSRLT-5J
T. Lesser, P-19J
F. Myers, MF-10J
EERB Read File (M. Johnson)
EERB Delivery Order File (C. Brasher)
EERB Site File (Char Gwizdala, SF Central File Room)
W. Massie, Contracting Officer, MC10-J
S. Emmanouil, On-Scene Coordinator
T. Turner, Attorney, ORC
D. Regel, Enforcement Specialist

ATTACHMENT 1

DETAILED CLEANUP CONTRACTOR COST ESTIMATE

The estimated cleanup contractor costs are as follow:

Contractor Personnel	\$ 3,800
Contractor Equipment	\$ 502
Subcontractor Cost	\$ 434
Unit Rate Material	\$ 669
Waste Disposal	\$ 2,195
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TOTAL	\$ 7,600

ENFORCEMENT ADDENDUM

Redacted - not relevant to the selection of the removal action.

ATTACHMENT 3
 ADMINISTRATIVE RECORD INDEX
 FOR
 109TH PLACE TEAR GAS SITE
 CHICAGO, ILLINOIS
 January 21, 1994

<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
09/30/93	E & E	U.S. EPA	Site Log	7
10/02/93	E & E	U.S. EPA	Site Log	5
01/12/94	E & E	U.S. EPA	Site Log	2
00/00/00	Guria, P., U.S. EPA	Muno, W., U.S. EPA	Action Memorandum (Pending)	